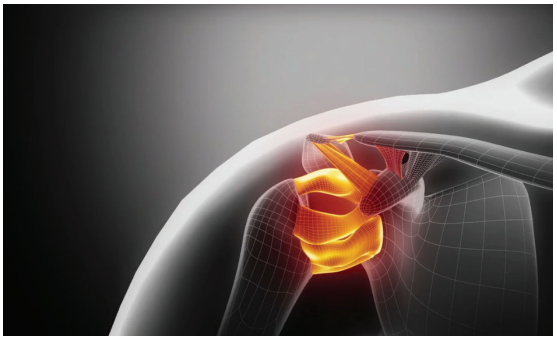
Quick Reads From NSF.gov

July 6, 2018

01



New, printable and flexible ceramic bone grafts could be a game changer

With support from NSF, materials scientist Ramille Shah of Northwestern University and materials engineer Adam Jakus were able to validate the commercialization potential of a new, 3D printable synthetic material they call "Hyperelastic Bone™," which they foresee will be a vast improvement over the current options, including other manmade materials. Once implanted, the Hyperelastic Bone promotes tissue growth and becomes the patient's own bone as it regenerates. Learn more in this NSF Science Nation.

02

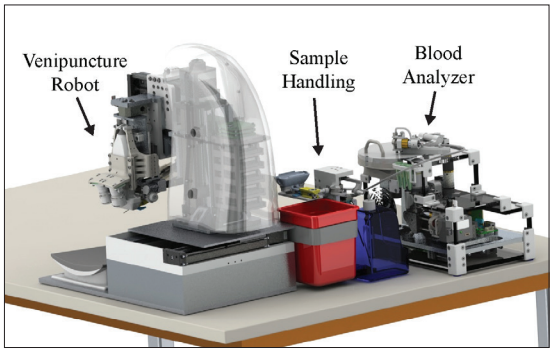
Statement on National Academies sexual harassment study

In September 2016, NSF's Office of Integrative Activities funded the National Academies of Sciences, Engineering, and Medicine to conduct a study on the prevalence and impact of sexual harassment in science, engineering and medical departments and programs. The results of that study are now publicly available in a new report, *Sexual Harassment of Women: Climate, Culture and Consequences in Academic Sciences, Engineering, and Medicine*. NSF Director France Córdova issued the following statement:

To fix a problem, we first must understand it. That's why, nearly two years ago, the National Science Foundation (NSF) funded the most comprehensive examination to date of sexual harassment in academic sciences, engineering and medicine. Eliminating sexual harassment in research is an NSF priority, as each occurrence diminishes people, damages careers and weakens the integrity of the entire scientific enterprise. Sexual harassment negatively impacts diversity and inclusion, discouraging prospective participants in science. A safe environment, on the other hand, allows everyone to thrive and excel.

Read the full NSF press statement.

03



Rutgers researchers develop automated robotic device for faster blood testing

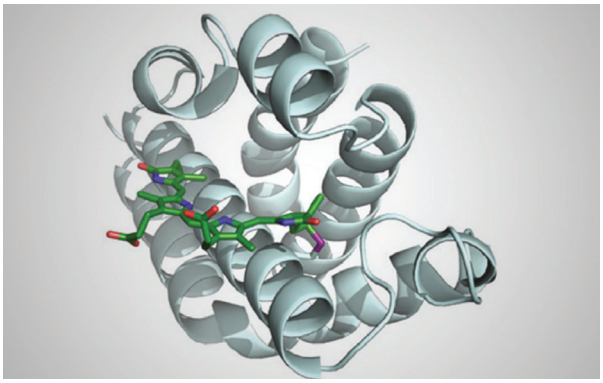
Rutgers University researchers have created an automated blood drawing and testing device that provides rapid results, potentially improving the workflow in hospitals and other health-related institutions to allow health care practitioners to spend more time treating patients. A study describing the fully automated device is published online in the journal TECHNOLOGY. Read more about the device in this NSF News From the Field story.

04

NSF supports development of new nationwide data storage network

NSF is announcing a $1.8 million grant for the initial development of a data storage network over the next two years. A collaborative team will combine their expertise, facilities and research challenges to develop the Open Storage Network (OSN). OSN will enable academic researchers across the nation to work with and share their data more efficiently than ever before. The project, led by Alex Szalay of Johns Hopkins University, leverages key data storage partners throughout the U.S. These partners include the National Data Service and members representing each of the four NSF-funded Big Data Regional Innovation Hubs (BD Hubs): the West BD Hub at the San Diego Supercomputer Center, the Midwest BD Hub at the National Center for Supercomputing Applications, the Southern BD Hub at the Renaissance Computing Institute, and the Northeast BD Hub at the Massachusetts Green High Performance Computing Center and Pittsburgh Supercomputing Center. Read more about the new data storage network in this NSF news release.

05



A change in bacteria's genetic code holds promise of longer-lasting drugs

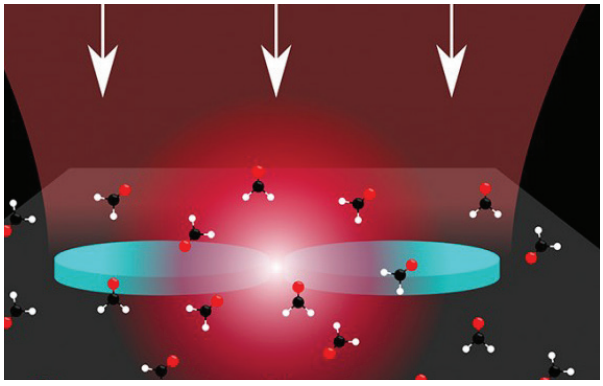
By altering the genetic code in bacteria, researchers at The University of Texas at Austin have demonstrated a method to make therapeutic proteins more stable, an advance that would improve drug effectiveness and convenience, leading to smaller and less frequent doses of medicine, lower health care costs and fewer side effects for patients with cancer and other diseases. Learn more in this NSF News From the Field story.

06

UW study shows how instruction changes brain circuitry in struggling readers

Using MRI measurements of the brain's neural connections, or "white matter," University of Washington (UW) researchers have shown that, in struggling readers, the neural circuitry strengthened -- and their reading performance improved -- after just eight weeks of a specialized tutoring program. Read more about this finding in this NSF News From the Field story.

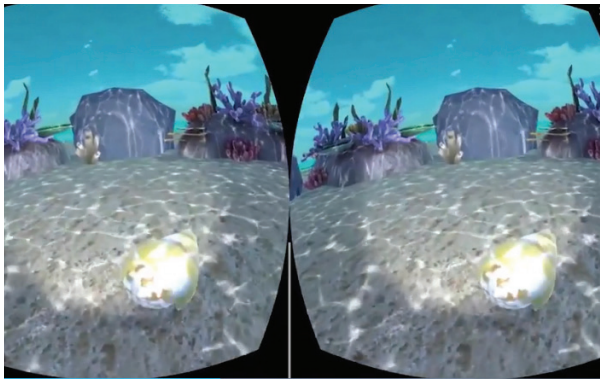
07



Squeezing light at the nanoscale

Researchers at the Harvard John A. Paulson School of Engineering and Applied Sciences have developed a new technique to squeeze infrared light into ultra-confined spaces, generating an intense, nanoscale antenna that could be used to detect single biomolecules. Learn more about the technique in this NSF News From the Field story.

08



Educational assessment tools embedded in STEM VR games – Killer Snails

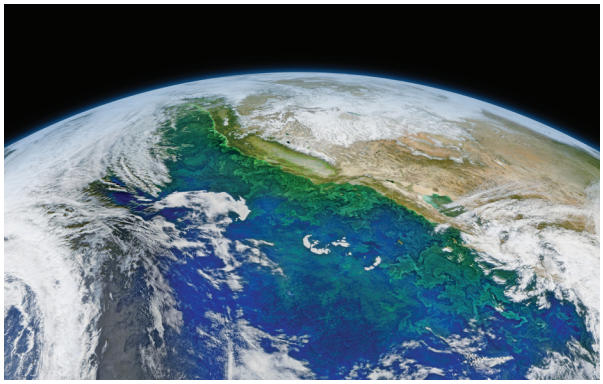
Killer Snails, a small business funded by NSF, is using a customized virtual reality (VR) game, "BioDive," to develop an educational assessment tool that measures student learning in real-time. "BioDive" is an immersive VR experience for middle and high school students aged 12 and up. The single-player game has three to five-minute scenes where students are marine biologist investigators trying to identify what is harming the delicate ecosystems of venomous marine snails. Throughout their expedition, students discover and analyze factors that impact marine biodiversity. As students play the game, educators see a real-time assessment of each individual student's learning process. Watch this video to learn more.

09

OSTP and NSF to honor 140 individuals and organizations with highest US award for teachers and mentors

The White House Office of Science and Technology Policy (OSTP), with NSF, announced today that more than 140 individuals and organizations will be honored with presidential awards for their excellence in teaching or mentoring in science, technology, engineering and mathematics. Kindergarten through sixth grade teachers will receive the Presidential Award for Excellence in Mathematics and Science Teaching, and mentors will receive the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring. See a list of awardees by state in this NSF news release.

10



NSF, NASA scientists explore ocean's 'twilight zone' to uncover links between carbon and plankton

Equipped with advanced underwater robotics and an array of analytical instrumentation, a team of scientists will set sail for the northeastern Pacific Ocean this August. The researchers' mission for the National Aeronautics and Space Administration (NASA) and NSF, which are supporting the project, is to study the life and death of microscopic plankton, tiny plant and animal organisms that play a critical role in removing carbon dioxide from the atmosphere and the oceans. The EXPORTS project is the first coordinated multidisciplinary science project of its kind to study the fates and carbon cycle impacts of microscopic plankton. The project will use several underwater robotic platforms and two research vessels operated by the Scripps Institution of Oceanography, the R/V *Revelle* and R/V *Sally Ride*, which will sail 200 miles west into the open ocean. Read more about the project in this NSF news release.

Image credits [top to bottom]: (page 1)NSF; NASEM; Max Balter (page 2) Johns Hopkins University; University of Texas at Austin; University of Washington; Capasso Lab/ Harvard SEAS (page 3) NSF; Teddy Yoshida; NASA.